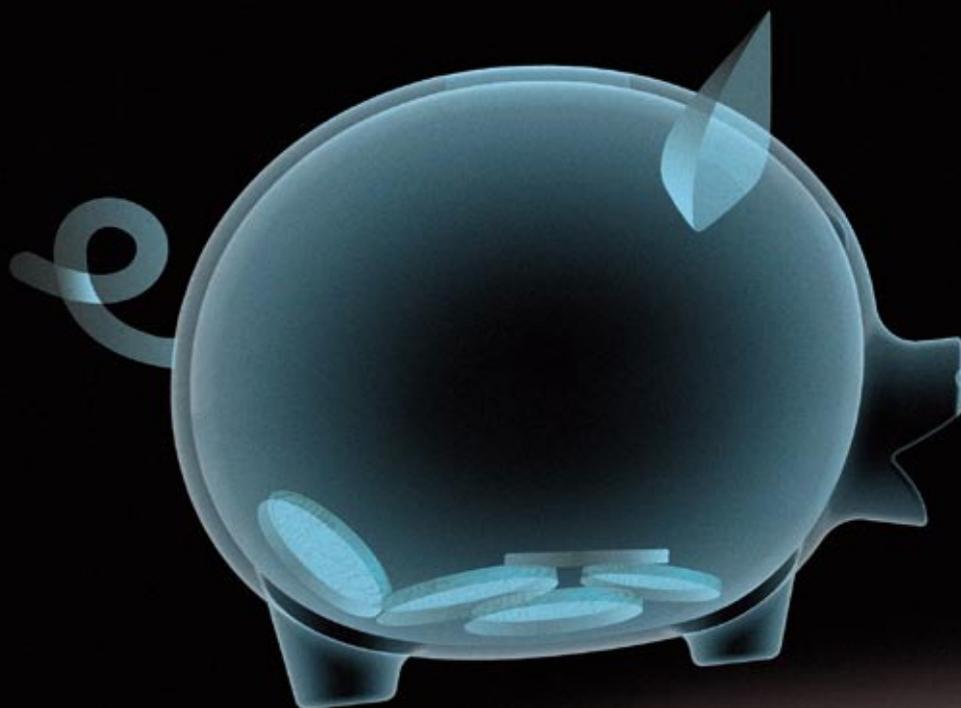


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COUGH UP FOR TB!

The Underfunding of Research for Tuberculosis
and Other Neglected Diseases by the European Commission

CAMPAIGN FOR	
ACCESS	
TO	
ESSENTIAL MEDICINES	

Cough up for TB!

The Underfunding of Research for Tuberculosis and Other Neglected Diseases by the European Commission

November 2008

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Author: Spring Gombe

Editorial team: James Arkinstall, Alexandra Heumber,
Dr. Frauke Jochims, Oliver Moldenhauer

Cover Design: Daniel Jaquet

Text Design: Twenty 3 Crows Ltd.

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Executive Summary

CONTEXT

Neglected diseases, neglected patients

Médecins Sans Frontières (MSF) teams are faced every day with the lack of adequate or effective tools needed to treat, detect or prevent disease. This situation is particularly dramatic for those diseases that predominantly occur in poor countries. All too often, effective medicines, vaccines or easy-to-use tests simply do not exist.

A major reason for this is the insufficient research devoted to developing new health tools for neglected diseases.

Globally, tuberculosis (TB), malaria and neglected tropical diseases account together for 12% of the burden of disease. Every year, 1.7 million people die as a result of TB alone.ⁱ Between 1.1 and 2.7 million people, mostly children under five years of age, die as a consequence of malaria.ⁱⁱ Over a billion people are estimated to suffer from neglected tropical diseases, and even this number is considered by some experts as an underestimation.ⁱⁱⁱ

Yet, despite such a deadly toll, these neglected diseases are much less researched than many other less lethal diseases.

Let deeds match words

Although the catastrophe due to these diseases has been repeatedly recognised, and ambitious but realistic targets have been set - not least through the UN Millennium Development Goals, and more recently through the work of the World Health Organization-hosted Intergovernmental Working Group on Public Health, Innovation and Intellectual Property (WHO IGWG) - the financial commitments lag far behind the political rhetoric, raising questions about the seriousness of the international community's response to this crisis in health.

This report examines the contributions of the European Commission (EC) to the funding of research for TB, malaria and other neglected diseases¹. The EC must be an important player in funding medical research, particularly as the European Union accounts for 31% of the world's GDP.^{iv}

Individual European member states equally have a responsibility to do far more than they are at present. This is addressed in other reports.² Following MSF's analysis of the Federal Republic of Germany's limited contribution to neglected disease research in April 2008, there are early indications that the German Bundestag will wake up to the challenges and increase its funding.

Content overview

This report is divided into six parts. In **Part 1. Why this report?** We provide the context and objectives of the report, including the underlying assumptions and methods. **Part 2: How the money is spent: the funding mechanisms of the EC** lays out the technical details of the funding structures of the EC in Framework Programme 7, to help give an understanding of budgetary allocations. In **Part 3. How much is spent: the flow of resources** we provide a detailed breakdown of funding to the diseases in this report, in the year 2007. In **Part 4. 'Fair share': how much should the EC be paying?** we use tuberculosis to illustrate the current shortfalls in funding for the diseases of the report, and to determine the amount that the EC should be paying. **Part 5. Conclusions** presents our main findings. In **Part 6. Recommendations**, we hone in on the particular policies that, in our view, can be directly targeted for change, and give our recommendations for policy action.

THE RESULTS

Significant shortfalls

Our findings, focused on the year 2007, show that through its various instruments, the EC spent an estimated **35.8 million euros** on research and development for TB, malaria and other neglected diseases together. **Tuberculosis accounted for 18.7 million euros, and malaria 17.1 million euros - nothing was disbursed for neglected tropical diseases.**

While to the layperson a 35.8 million euros sum might seem substantial, the amount is in fact deeply inadequate, almost negligible, in both absolute and comparative terms. Methods to determine the 'fair share' that should be paid by the European Commission show to what extent the EC is falling short of pulling its weight.

¹ This report uses the term 'neglected diseases' to mean TB, malaria plus the following 14 neglected tropical diseases (as per WHO definition, http://www.who.int/neglected_diseases/diseases/en/): Buruli Ulcer, Chagas disease (American trypanosomiasis), Dengue/dengue haemorrhagic fever, Dracunculiasis (guinea-worm disease), Fascioliasis, Human African trypanosomiasis, Leishmaniasis, Leprosy, Lymphatic filariasis, Neglected zoonoses, Onchocerciasis, Schistosomiasis, Soil transmitted helminthiasis, Trachoma, Yaws. The European Commission defines TB and malaria as "poverty related diseases". Dengue is considered as a re-emerging disease. The EC does not include Cutaneous Leishmaniasis in its category of "neglected infectious diseases": http://ec.europa.eu/research/health/infectious-diseases/neglected-diseases/index_en.html

² This is the second report in an MSF series looking at the underfunding of tuberculosis and other neglected disease research in Europe. The first report, focusing on Germany, was published in April 2008, and is available in German and in English. <http://www.msfaaccess.org>

4 • Cough up for TB!

We have chosen to **focus on tuberculosis** in order to determine what the EC's 'fair share' might be.

A recent (July 2008) estimate provided by the Treatment Action Group (TAG) in its *Analysis of TB funding trends*, puts the figure for TB research and development (R&D) needs at 1.45 billion euros (US\$2 billion) every year. According to the same source, only one fifth of this is actually being provided.

Given that the European Union accounts for approximately 31% the world GDP, the EU's 'fair share' of contributions required to reach the global TB R&D funding needs would be 409 million euros. This assumes that private contributions, including the massive financing given by the Bill and Melinda Gates Foundation and other private actors, stays as it is today.

This figure includes both the share of the 27 EU member states and the Commission's. Current funding trends show how the EC contributes roughly a quarter of the EU's financing of TB R&D. If one assumes this ratio to remain constant, **the share that is thus attributable to the European Commission is 101 million euros a year.**

Compared to this, the EC's actual contribution for TB research of 18.7 million euros **is a shortfall of more than 80%.**

On a comparative basis - the European Union (EC + member states) currently spend only one third as much on TB research and development as the US public sector. Given that the European GDP is 21% higher than that of the USA,^v there is no basis for this huge discrepancy.

It is all the more astounding given that Europe is on the frontline of the TB epidemic, with rapid and alarming spread of the epidemic in Central Asia, the Caucasus and Eastern Europe, and even within the European Union in the Baltic States.

Systemic problems

In the course of compiling the EC's contribution to funding resources, this report also identified various

structural deficiencies in the way money for research is disbursed by the EC. These include: no earmarking of funds for tuberculosis, malaria and other neglected diseases, a model that is unfavourable to the large product development partnerships that work in R&D for tuberculosis, malaria and other neglected diseases, and a more general lack of clarity over disbursements and timelines.

Failure to promote alternative financing mechanisms

Research and development funding requires a well considered mix of different funding mechanisms. The lack of adequate medical tools for tuberculosis, malaria and other neglected diseases obviously shows that relying on intellectual property rights to encourage the private sector to invest in medical innovation for these diseases is grossly ineffective. New mechanisms are therefore necessary, and should be designed as complements to the traditional "push" mechanisms, and as alternatives to the patent-based model.

Many of these new mechanisms have attracted considerable interest - such as the idea of a prize fund for a point-of-care tuberculosis diagnostic test. The European Commission, and the 27 Member States, have also committed to exploring these mechanisms by adopting the Global Strategy and Plan of Action on Public Health, Innovation and Intellectual Property, at the World Health Organization in May 2008.

Yet to date, little interest or motivation has been shown by the EC in this regard.

Cough up for TB, malaria and other neglected diseases!

In sum, the European Commission and its Directorate General Research is falling far short of carrying its weight in terms of research and development for TB, malaria and other neglected diseases.

This is a matter to be addressed urgently by the Commission, Parliament and Council and by the member states. MSF urges that these institutions come together, not to shift responsibilities, but to acknowledge the shortcomings and to act, at latest by the mid-term review, to substantially increase the budgets for these diseases.

1. Why this report?

1.1 Urgent medical needs, largely ignored

MSF teams are constantly frustrated by the lack of adequate medical tools to give quality care to the patients we treat. A major reason for this is the insufficient research devoted to developing new health tools for neglected diseases.

Tuberculosis

The World Health Organization (WHO) estimates there are nine million new cases of tuberculosis, and almost 1.7 million people die every year from the disease.^{vi} Even more worrying is that this disease, often considered as a scourge of the past, has returned with new faces that are stretching our capacities to breaking point. The emergence and spread of strains that are resistant to the standard drugs used to treat TB, coupled with the rapid spread of TB among people living with HIV, have led to a situation where far from being contained, TB is in fact spiralling out of control.

There are now around half a million new cases of multidrug-resistant (MDR) TB every year,^{vii} and the numbers of people with HIV contracting TB have risen threefold in the last 15 years - currently 11 million people are infected with both diseases.^{viii}

The medical tools at our disposal to respond to this crisis are woefully inadequate. The most commonly used diagnostic tool in resource-poor settings has remained substantially the same since it was developed by Robert Koch - almost 130 years ago. It is a tool which in real life settings, misses about as many patients as it detects, and is completely ineffective in detecting TB in patients co-infected with HIV/AIDS, who are most at-risk of death.^{ix}

For a vaccine, we continue to use the Calmette-Guerin Bacterium (BCG) vaccine developed by the Institut Pasteur in the early part of the 20th century. This vaccine is highly ineffective in all but small children, and therefore hardly has any epidemiological impact, as small children only rarely transmit the disease.

Treatment of TB relies on antibiotics developed decades ago, an arduous regimen with significant side effects that must be followed for at least six or eight months. Development of drug resistance over time is a well known, predictable problem for all antibiotics, even when drugs are properly used. Treatment of resistant strains of the disease, however, is far worse - daily injections for up to six months and a total treatment time of 18 to 24 months or more of taking a handful of different drugs - many of which come with debilitating

and terrifying side effects. Worse still, in 2006, strains of TB known as extensively drug-resistant were identified, for which treatment options are severely limited.

In fact, this desperate situation we find ourselves in today, is due to the neglect of TB research over previous decades. Through chronic underfunding of research, we have effectively let TB turn into a global public health emergency.

Yet the research continues to fall pitifully short of what is needed. For example, of the approximately US\$2 billion required annually to tackle TB, only roughly US\$400 million is currently invested globally.^x

Malaria

Drug resistance has developed to a range of medicines used to treat this mosquito-borne disease, to the point that older drugs such as chloroquine or sulphadoxine-pyrimethamine are failing in many African countries.

Newer artemisinin-based combination therapies are very effective. But with malaria, we should not make the same mistake of being complacent and neglect research into new treatments, as was the case with tuberculosis. Indeed, one must also reckon with the development of resistance to these newer combinations over the long-term. All the newer malaria medicines in development are based on the same class of drugs, so that if resistance to artemisinin develops, no alternative drugs would be available for malaria treatment.

Malaria vaccine research is ongoing, but the first vaccine which might be available in the coming years, will only have very low efficacy.^{xi}

The Roll Back Malaria (RBM) Programme estimates a global annual funding need of 647 million euros for malaria drugs, diagnostics and vaccines.^{xii}

Neglected tropical diseases

The WHO considers 14 tropical diseases to be 'neglected'.³ Many of these are preventable, or curable, or, as in the case of Guinea Worm, could be eradicated. Others however, such as Leishmaniasis, Chagas disease, Buruli ulcer or sleeping sickness, lack efficient and safe medicines due to decades of neglect in research and development. Children are particularly vulnerable to these diseases.

To our knowledge, there are no estimations about how much money is currently being spent globally on R&D for neglected tropical diseases nor have the global funding needs been quantified yet.

3 see full list in footnote 1 or http://www.who.int/neglected_diseases/diseases/en/

Example 1 :

Challenges for Treating Leishmaniasis

Largely unknown in the developed world, leishmaniasis is a parasitic disease that affects over 12 million people worldwide. Approximately half a million new cases of visceral leishmaniasis (also known as kala-azar in India) are reported to occur each year although it is thought that only up to a third of all new cases actually get reported. Left untreated, visceral leishmaniasis is fatal.

All currently available drugs have drawbacks - either drug administration is complicated, or treatment is lengthy (three to four weeks), or toxic or expensive - limiting their utility in disease-endemic areas. Cheaper, safer and more practical drugs are needed to improve patients' access to treatment for this forgotten disease.

Example 2:

Chagas: Existing medical tools far from ideal

Chagas disease is caused by the parasite *Trypanosoma cruzi*, which is transmitted to humans by blood-sucking insects widely known as the "kissing bugs". The disease is primarily found on the American continent, where it affects an estimated 16 - 18 million people and claims up to 50 000 lives a year.

The two current treatments, benznidazole and nifurtimox, are only useful during the early stages of the infection which often goes undiagnosed. Both drugs have to be given over a long period of time (60 or 90 days respectively) and have a number of serious side effects. The drugs have little benefit once the disease is established. More research and development for easy-to-use and more efficient medicines and tools to diagnose and treat patients in all stages of the disease is needed.

1.2 Why the research and development system is failing

Although tuberculosis, malaria and other neglected diseases account for 12% of the global disease burden, barely 1.3% of new chemical entities reaching the market between 1975 and 2004 (21 of the 1556 new chemical entities developed, three of which for TB) targeted these diseases.^{xiii}

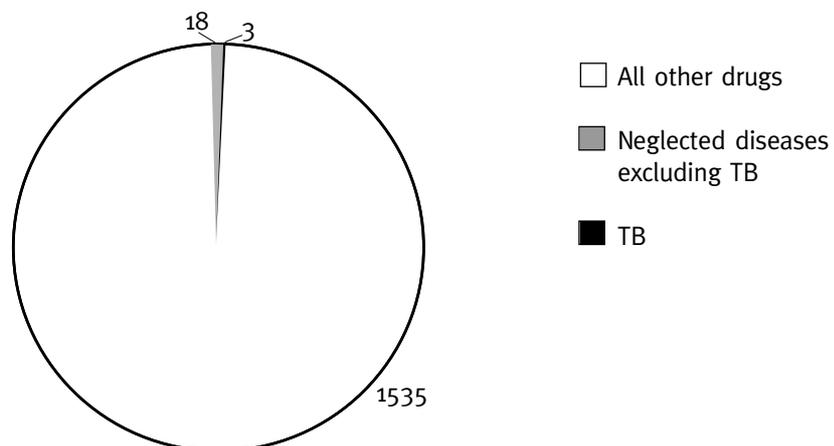
Such a stark lack of treatments for tuberculosis, malaria and other neglected diseases comes down to simple fact: because the people affected by such diseases are poor, and unable to afford expensive health products, they do not represent a commercially viable market. As such, pharmaceutical companies have largely turned away from them, and focused instead on responding to

more 'lucrative' afflictions which affect first and foremost wealthier patients, such as those in western industrialised nations.^{xiv}

The Commission on Intellectual Property, Innovation and Health (CIPIH) states that "for diseases affecting millions of poor people in developing countries, patents are not a relevant factor or effective in stimulating R&D and bringing new products to the market".^{xv}

The industry's International Federation of Pharmaceutical Manufacturers and Associations (IFPMA) admits that "there is a need for increased and ongoing funding for R&D for medicines for neglected diseases. (...) As these diseases affect the poorest of the developing world, the opportunities for revenue that drive the investment in R&D for 'regular' diseases do

New drugs developed 1975-2004



not exist or are associated with a greater level of risk, which discourages investment.”^{xvi}

Without the prospect for profits, there is little incentive for the pharmaceutical industry to invest in tuberculosis, malaria and other neglected diseases.

1.3 Public responsibility

Public actors have a responsibility to step in to address this market failure. In fact, this is a public responsibility that the EC has either actually acknowledged, or been entrusted with, and on a number of different occasions:

The EU Lisbon Agenda set in 2000 the 'Barcelona target' of increasing R&D investment to 3% of GDP by 2010.^{xvii}

In addition, the Joint Parliamentary Assembly of the European Union and the African, Caribbean and Pacific countries, resolved in February 2007 to give greater priority to research and development, and access to medicines for these diseases:^{xviii}

“the Joint Parliamentary Assembly

{...}

Welcomes the inclusion of neglected diseases and the emphasis on translational research in the EU's Seventh Framework Programme for research; asks the Commission to support institutes willing to cooperate with public health initiatives aimed at these sectors and to guarantee that new medicines resulting from public-financed research will remain accessible to all

{...}

Recognises the role of the EDCTP in organising clinical trials for new medicines and vaccines suited to the local clinical, ethical and social conditions of disease-endemic countries, and calls for the activities of the EDCTP to be broadened to include other neglected diseases and other phases of clinical development (Phases I and IV)”

This followed the European Parliament's issuing of a report in September 2005 on diseases of developing countries, in which it instructed the European Commission to include in its Seventh Framework Programme (FP7) specific reference to and funding for research:

“The European Parliament

{...}

Regrets the lack of R&D into diseases which almost exclusively affect poor people in developing countries, due to lack of viable market, and that this must be corrected by international efforts.

{...}

Calls for the FP7 to include specific reference to and funding for research on illnesses that affect citizens of developing countries”^{xix}

Finally, the European Commission, along with all member states of the European Union, is party to an intergovernmental agreement that seeks to address the lack of research and development for diseases that disproportionately affect developing countries, such as tuberculosis, malaria or the most neglected diseases.

The conclusion of the two year intergovernmental working group process hosted by the World Health Organization,^{xx} was a Global Strategy and Plan of Action for Public Health, Innovation and Intellectual Property, adopted in May 2008 as WHA Resolution 61.21.

Through the Strategy, more than 100 negotiating states instructed the WHO Director General inter alia:^{xxi}

to establish urgently a results-oriented and time-limited expert working group to examine current financing and coordination of research and development, as well as proposals for new and innovative sources of funding to stimulate research and development related to Type II and Type III diseases and the specific research and development needs of developing countries in relation to Type I diseases.⁴

1.4 The objective: mapping public investment into tuberculosis, malaria and other neglected diseases research

This report, the second in a series on European states and multilateral organisations,^{xxii} is thus an attempt by MSF to establish the degree to which these governments and organisations have given priority to, and provided funding for research and development of medicines, diagnostics and vaccines for tuberculosis, malaria and other neglected diseases. It seeks to examine the extent to which rich countries and their institutions are meeting their responsibilities in research for global infectious disease control.

How much has the European Commission disbursed on TB, malaria and other neglected diseases R&D in 2007? Is it enough, given the medical needs and the colossal funding gaps that exist? Is the EC respecting the commitments undertaken as a part of the WHO Global Strategy and Plan of Action for Public Health, Innovation and Intellectual Property? If not, why not?

In addition to summarising the funding resources, this report also seeks to highlight structural deficiencies in

4 Type I diseases are incident in both rich and developing countries, with large numbers of vulnerable population in each. Examples of communicable diseases include measles, hepatitis B, and Haemophilus influenzae type b (Hib), and examples of non-communicable diseases abound (e.g. diabetes, cardiovascular diseases, and tobacco-related illnesses). Type II diseases are incident in both rich and developing countries, but with a substantial proportion of the cases in the poor countries. HIV/AIDS and tuberculosis are examples: both diseases are present in both rich and developing countries, but more than 90 percent of cases are in developing countries. Type III diseases are those that are overwhelmingly or exclusively incident in developing countries, such as African sleeping sickness (trypanosomiasis) and African river blindness (onchocerciasis). Such diseases receive extremely little R&D, and essentially no commercially based R&D in the rich countries. When new technologies are developed, they are usually serendipitous, as when a veterinary medicine developed by Merck (ivermectin) proved to be effective in control of onchocerciasis in humans. Type II diseases are often termed 'neglected diseases' and Type III diseases 'very neglected diseases' (definitions from CIPIH Report, p26).

the way money for research is disbursed by the EC, as well as identify potential solutions.

1.5 Methodology and underlying assumptions

The report focuses on recent contributions of the EC through its major funding programmes towards global research efforts to tackle these diseases.

It has considered the key funding stream to be the European Commission Framework Programmes. Framework programmes are the EU's main way of funding research and development in Europe. The bulk of funding is for transnational collaborative research under a number of high-level themes, including health. As such, we have included residual funds disbursed through Framework Programme 6 (FP6) and current funds disbursed through Framework Programme 7 (FP7).^{xxiii}

In compiling the data, we have drawn heavily on documents from the searchable EC CORDIS databank and discussions with the EC Directorate General for Research (DG Research) - this being the lead agency for funding for research and development in health. Additional source information comes from annual reports from The European & Developing Countries Clinical Trials Partnership (EDCTP), from the specific global initiatives for these diseases, including the Stop TB Partnership, RBM and WHO TDR. We also gained information through interviews with various stakeholders in infectious disease research and development, particularly product development partnerships and advocacy groups for the diseases.

In compiling the figures invested in supporting research, we proceeded on the following basis:

- 2007 has been chosen as the reference year.
- Only monies that were actually disbursed, as opposed to simply allocated, have been included.
- For multi-annual projects, we felt impelled to presume that the allocated funds awarded over several years were actually being disbursed linearly over the duration of the project.
- We did not attempt to evaluate the qualitative merit of the research (whether research was good or bad). We assumed that the available financing instruments function so that they support research that fulfils desired scientific standards.
- We were not investigating in what research and development was done within the European Union, but in what the European Commission financed in research and development in 2007. We thus only included project support and institutional resources disbursed by the EC and its organs or agencies, and not funds obtained from other organisations such as, for example, the Bill and Melinda Gates Foundation or indeed from MSF.
- Figures obtained from interviews or contacts with Commission staff, experts and others on their budgetary allocations for research into neglected diseases were compared with budget plans and audited budgetary accounts, in as far as these were available, and any resulting inconsistencies were then re-evaluated.
- All figures have been rounded to the nearest 100,000.
- All data used in the report was submitted for comment and correction to the major sources of information. Where comments and corrections were provided, they were either integrated or noted in the report in the relevant places. We received no response from DG Research to our figures by our editorial deadline (3 November 2008).

2. How the money is spent: The funding mechanisms of the EC

Public funding for research and development for infectious diseases from the European Commission is directed through the Directorate General for Research (DG-Research).

This report focuses on the most recent funding project - the Seventh Framework Programme on Research and Development, commonly referred to as FP7, which runs from 2007-2013. It also makes reference to residual funding disbursed in 2007 through the previous Framework Programme - FP6.

At the EC level, funding for R&D of health technologies, including medicines, diagnostics, and vaccines, is directed through a number of different channels:

2.1 The Cooperation Programme Health budget

This budget constitutes the primary source of funding for R&D for infectious diseases, and is allocated either directly through calls for grants or indirectly through the European and Developing Countries Clinical Trial Partnership (see below).

Research in the area of health represents 19% of the total European Commission research budget and accounts for approximately **6.1 billion euros** for the seven-year duration of FP7 (2007 - 2013). In 2007, FP7 allocated a total of **637 million euros** for research in the area of health.

Funding process

For the purpose of its research funding allocation, the EC classifies infectious diseases into four 'topical' categories:^{xxiv}

1. HIV/AIDS, malaria and TB
2. Neglected infectious diseases: human African trypanosomiasis (HAT or sleeping sickness), kala azar (visceral leishmaniasis), Chagas, elephantiasis, schistosomiasis, ascariasis, trichuriasis, hookworm, Buruli ulcer, trachoma, leprosy, infantile diarrhoea
3. potentially new and re-emerging epidemics: emerging viral diseases of actual or potential relevance to Europe, including at present, e.g. influenza, vCJD, Chikungunya, Dengue, West Nile fever, Crimean-Congo haemorrhagic fever
4. Antimicrobial resistance

The intention of the EC has been to encourage competition between different grants applications received in response to each call for applications. The perhaps unforeseen consequence of this policy is that no funds are earmarked for a particular disease.

All applications for grants in response to calls for research in the field of infectious diseases are assessed against each other within, and between topics.^{xxv} So for example grant applications for TB research compete both with those for malaria and HIV/AIDS (within topic) and neglected infectious diseases (between topics).

In addition, competition also reigns between funding applications in the field of infectious diseases and applications for research on all other diseases as there is no earmark for the funding of research on the above-mentioned infectious diseases - which include the most neglected diseases that predominantly occur in poor countries. Funding applications for research on TB, malaria and other neglected diseases therefore not only compete against each other but, most importantly, they compete against research on all other diseases - including many commercially more lucrative ones.

This may introduce a bias against neglected diseases - indeed, research institutions and groups who receive funding from other sources, and particularly from industry, are more likely to be able to write better proposals, which in addition will be perceived as more viable or worthy of public investment. And these would tend to be for more commercially lucrative diseases.

Furthermore, the EC anticipated in this design that only one to two large-scale research projects on infectious diseases would be funded - receiving an EC contribution of between 6 million and 12 million euros, subject again to the assessed quality of applications. One consequence of this is the amounts awarded would be too small to attract the interest of some potential applicants, relative to the burden of applying for grants - a problem reported to us by certain Product Development Partnerships (PDPs) during our research.

These EU funding processes pitch neglected diseases against diseases with commercially viable markets, and in doing so unwittingly introduce a bias against neglected diseases. A bias that is likely to 'spread' to other donors - as projects that have already secured funding from credible sources are more likely to be judged viable than those that cannot boast any financial support. If neglected disease research projects cannot show EC support, they are arguably less likely to receive support from other funding bodies.

Benchmark: what happened in 2007

There were three funding calls (incorporating multiple calls for grants) in 2007 - two using FP7-funding for 2007 (637 million euros) and one using a portion of funds from the FP7 2008 budget (549 million euros). The funding calls came to a total of about 1.2 billion euros allocated.

It is interesting to note that the majority of grants awarded for TB, malaria and other neglected diseases were for small or medium scale projects, that is, for budgets not exceeding 3 million euros per project.

2.2 The European and Developing Countries Clinical Trials Partnership

The European and Developing Countries Clinical Trials Partnership (EDCTP) is a special partnership programme of 14 European Union countries, Norway, Switzerland and 40 sub-Saharan countries, jointly undertaking clinical trials research for HIV/AIDS, TB and malaria.

The EDCTP receives funding from private donors, the European countries and the EC - the latter contributing 57% of the EDCTP's budget.

In 2007, EDCTP received a total of 37.8 million euros from the EC. During the same year the EDCTP awarded a total of 28.8 million euros in grants, most of which to multi-annual projects over up to five years.

In order to calculate the EC's contribution to research for TB, malaria and other neglected diseases via the EDCTP this report looks at monies disbursed by the EDCTP to grants in 2007 (for multi-annual grants only the linear proportion for 2007) and then considers 57% of these amounts as the actual EC contribution (this being the EC share of the total EDCTP budget).

2.3 The European Research Council^{xxvi}

The European Research Council (ERC) was launched in February 2007 with a budget of 7.5 billion euros for the duration of FP7, and a mandate to fund principal investigator-led 'frontier research'. The Council operates as an independent, scientist-led funding body, and has 22 members.

The ERC funds through two schemes - the ERC Starting Independent Researcher grant scheme (ERC Starting Grants) and the ERC Advanced Investigator grant scheme (ERC Advanced Grants).

Starting Grants, capped at 2 million euros for up to five years, are awarded for pioneering research in any field of science, to scientists working in an EU member state or associated country.^{xxvii}

Advanced Grants, capped at 3.5 million euros per grant for up to five years, are awarded for pioneering research in any field, to scientifically independent principal investigators, with a recent record that establishes them as a leader in their respective fields of research, again working in an EU member state or associated country.

It is anticipated that advanced grants will account for two-thirds of funding from the ERC and starting grants for one-third.

The total available amount in calls from the ERC was 290 million euros in 2007. Grants in life sciences and medicines were not quantified separately.

No funding was awarded to researchers in any area by the end of 2007, this included potential applications for TB, malaria and the other neglected diseases. This was as a consequence of the funding structure of the ERC,^{xxviii} which envisioned final grantee awards in 2008.

2.4 The Innovative Medicines Initiative^{xxix}

The Innovative Medicines Initiative was launched in May 2007, as part of a new model of financing in FP7.^{xxx} A joint undertaking between the EC and the European Federation of Pharmaceutical Industries and Associations (EFPIA), the aim of the IMI is 'to make Europe the world leader in bio-pharmaceutical research, based on a Public-Private-Partnership (PPP)' between the pharmaceutical industry, as represented by the EFPIA, and the EC. The key intended output is to provide new tools and identify methodologies to remove major bottlenecks in drug development.

The IMI has a budget of 2 billion euros over 2007-2013, with 1 billion euros coming from the EC's FP7 budget, the other 1 billion euros from industry, primarily through in-kind contributions. This means that approximately 285 million euros was available for investment in 2007.

Although infectious diseases, including TB and malaria, have been announced in the IMI's research agenda, the annual respective funding allocation for them is very low (10 million euros).

No monies were disbursed in 2007. The IMI issued its first call for grants in 2008, and none of these were specifically for infectious diseases, despite available allocated resources.

3. How much money is spent: The flow of resources

3.1 Tuberculosis

Through the Cooperation Programme Health budget in FP7, one project was funded in TB research in 2007. From the CORDIS search machine of DG Research, we were able to ascertain that the total amount awarded was 2.98 million euros over three years.^{xxxii} The 2007 share disbursed is **1 million euros**. An additional **15.1 million euros** was disbursed for projects funded through FP6.

A total of four grants were awarded in 2007 for research in TB through the EDCTP,^{xxxiii} equalling funding for TB in 2007 to 5.7 million euros. These grants were awarded for five years, from which the proportion for 2007 is calculated at 1.1 million euros for TB. The EC contribution to the EDCTP budget is 57% of the total EDCTP budget. This means the actual EC contribution disbursed for TB research through EDCTP was **0.7 million euros** in 2007. An additional **3.3 million euros** was disbursed for projects funded through EDCTP in FP6, of which the EC share (57%) is **1.9 million euros**.

There were no funds disbursed by the IMI in 2007. An overview of the call for grants in 2008 shows that the scientific priorities are diseases that occur within Europe, safety and pharmacovigilance. No specific priority was given to infectious diseases.^{xxxiii}

In all a total of 18.7 million euros was disbursed in 2007, of which 1.7 million euros was new money from FP7.

No money at all for TB Diagnostics

If the case for funding research into TB drugs is dire, then the problem for funding TB diagnostics is appalling. Diagnostic research attracted only 7.3% of all global funding for TB in 2006. Of this, the lion's share came from the Bill and Melinda Gates Foundation, which provided half of the funds. US public funding amounted to a further 32% of funds, and all public funding from Europe came to just 5% of funding. None of these funds came from the EC. In addition no grants were issued for TB diagnostics through FP7 in 2007, either through direct funding or EDCTP, and no calls for grants from EDCTP in 2007 were for TB diagnostics.

TB clinical experts agree that great advances in tackling the disease could be achieved by improving the capacity to positively identify TB at the earliest juncture. The lack of EC funding for TB diagnostic research is all the more lamentable for this reason.

3.2 Malaria

From the Cooperation Health Programme budget, two projects were funded in 2007. One project received 3 million euros over four years (2007 share: 0.75 million euros), the other 2.8 million euros over five years (2007 share: 0.56 million euros). The total 2007 share of these two projects is **1.3 million euros**. An additional **14.8 million euros** was disbursed for grants funded through FP6.

No funding was disbursed for malaria in 2007 from FP7 by the EDCTP. However, funding totalling **1.7 million euros** was disbursed through EDCTP from FP6 in 2007, of which the EC share (57%) is **1 million euros**.

No targeted funding was disbursed through the European Research Council or the Innovative Medicines Initiative.

In all a total of 17.1 million euros was disbursed for malaria in 2007, of which 1.3 million euros was new money from FP7.

3.3 Neglected tropical diseases

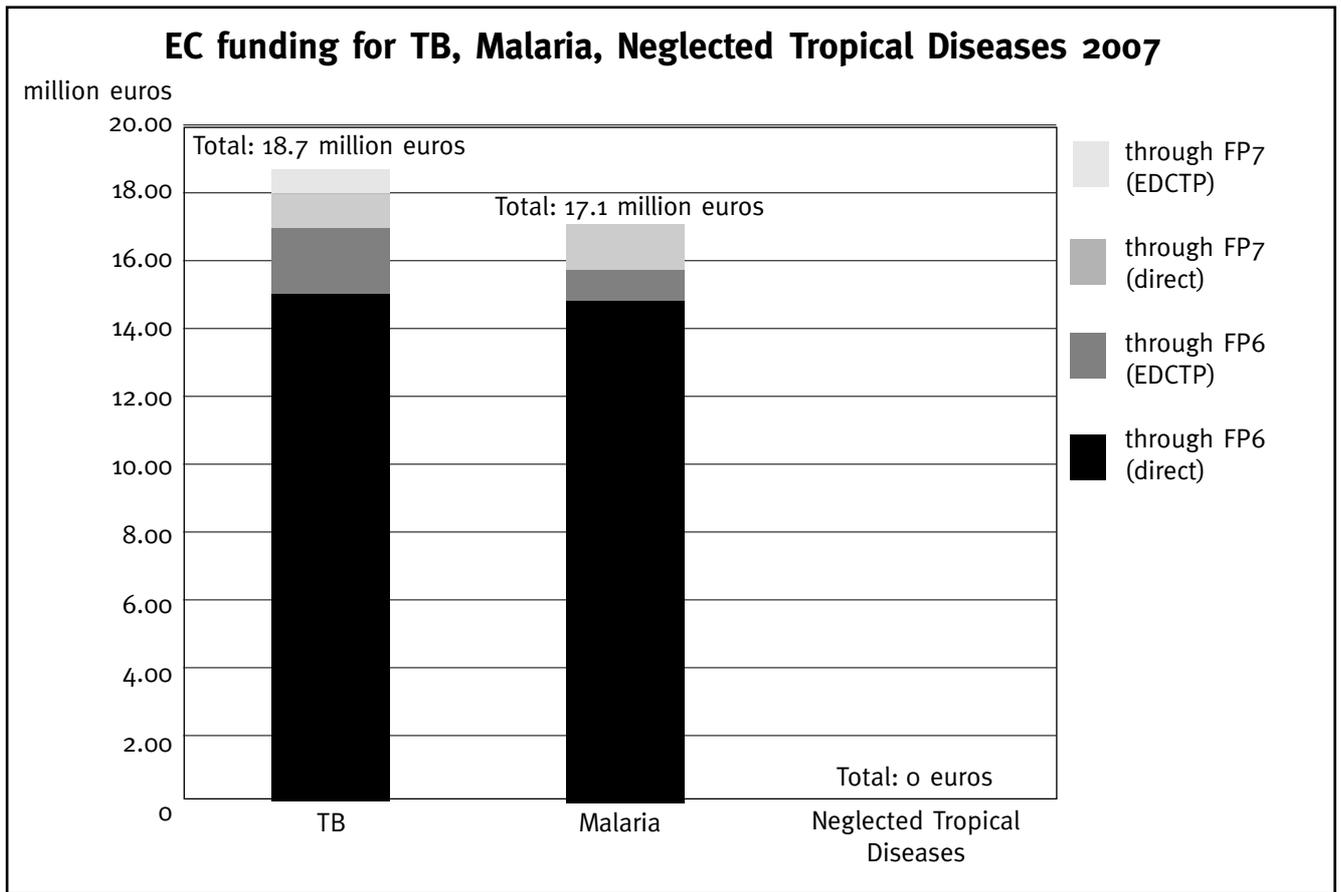
The European Commission disbursed no funding for neglected tropical diseases in 2007.

The EDCTP does not fund research into neglected tropical diseases, nor is funding available for this research field through the IMI. No funding was disbursed by the European Research Council or the Innovative Medicines Initiative.

The total disbursed funding for neglected tropical diseases in 2007 was zero euros.

3.4 Totals

The total sum disbursed by the EC for TB, malaria and other neglected diseases research in 2007 was **35.8 million euros**.



4. ‘Fair Share’: How much should the EC be paying?

What is a fair share?

The question of how much each country or regional economic power should contribute to tackling neglected diseases is a complex one. How can one determine what is a ‘fair share’?

Research into neglected diseases has been widely accepted both as a public responsibility and as a joint global one - the private sector being fundamentally ill-equipped to deliver what is needed. Indeed, wealthier countries have committed to contribute to research for diseases such as tuberculosis, malaria or other neglected diseases, even if their population only suffers to a minor degree.

A general approach based on the principle of ‘the richer you are, the more you should contribute’ would thus seem to make the most sense. All countries should be required to contribute - even the smallest or least wealthy - but in proportion to their abilities to pay.

If one takes GDP as the most salient and simple indicator of wealth and economic power, the European Union, accounting for 31% of global GDP, would therefore be faced with a ‘fair share’ of 31%. Put another way, the EU’s global responsibility for TB, malaria and other neglected disease research would stand at close to a third of global public financing of research undertaken into these diseases.⁶

What should the EC pay? An illustration through TB research funding

In 2007, the WHO Stop TB Partnership - whose membership includes EU member states, and representation of the EC - launched a ‘Global Plan to Stop TB’, estimating the needs in TB funding at 7.6 billion euros (US\$9 billion) over ten years for research and development of medicines, vaccines and diagnostics.^{xxiv} This translates to 0.8 billion euros (US\$0.9 billion) a year.

However, such an estimate ignores the needs for basic science, applied and operational research. In view of this, we will rely on the more recent (July 2008) estimate provided by the Treatment Action Group (TAG) in its Analysis of TB funding trends, putting the figure for **TB R&D needs at 1.45 billion euros (US\$2 billion) every year.**

According to TAG, the actual worldwide total investment in TB R&D in 2006 was only 312 million euros (US\$429 million), with the public sector contributing 181 million euros (US\$238 million) and private sources providing 131 million euros (US\$181 million).

If one assumes that philanthropic and private sector funding for TB research stays constant⁷ over the next few years, the public sector share of the TB R&D funding needs comes to 1.32 billion euros per year.⁸

The ‘fair EU share’ therefore comes to 31% of 1.32 billion euros, or 409 million euros per year for tuberculosis R&D.

What is the EC paying for TB research? Is it meeting its responsibilities?

This report has determined the actual contribution of the EC stands at 18.7 million euros. In other words, **the EC is currently paying barely 4.6% of the EU’s ‘fair share’ for TB research and development.**

Comparisons with the US are revealing. According to TAG, on a comparative basis, the European Union (EC plus member states) currently spends only one third as much on TB research and development as the US public sector.^{xxv} Given that the European GDP is 21% higher than that of the USA,^{xxvi} there is no basis for this huge discrepancy.

Of course, the EU ‘fair share’ includes both the European Commission and the 27 Member States of the EU. Determining which instance - the Member State, or the Commission - should pay what proportion of the EU’s share is a matter that must be resolved, not least to prevent governments from passing the buck on to the Commission and vice versa.

Nevertheless, the current amount spent by the EC, at barely 4.6% of the total EU ‘fair share’, points to a considerable shortfall - especially given MSF’s mapping of Europe’s largest economy, Germany, which also contributes insignificant amounts: In 2007, Germany expended only 7.5 million euros on TB research, which means that the most economically potent EU member state contributed less than 2% to the total EU ‘fair share’ (409 million euros per year).⁹

6 Instead of assuming that a country’s ‘fair share’ is equivalent to its share of the world’s GDP, a more refined indicator may be to use GDP per capita. This would allow a country’s ‘fair share’ to be dependent on its relative wealth per capita, using a similar system to progressive income taxation - the richest pay proportionally more than the poorest. Thus, a country with a GDP per capita of US\$10,000 would, for example, be required to contribute a share of 0.1% of its GDP, when a country with US\$20,000 would have to contribute 0.2% of its GDP, and so on. Using this calculation, the EU’s ‘fair share’ falls at between 32% and 36%, depending on whether the EU is considered as a single country or as a grouping of 27 individual countries. For the purposes of this report, we have chosen the more conservative of the figures to determine the EU’s fair share, i.e. the share of world GDP at 31%.

7 In 2006 the private sector contribution was about 131 million euros, of which 38.6 million euros was from industry and 92.8 million euros from philanthropic organisations such as Bill and Melinda Gates Foundation, which alone outspends the EC manifold.

8 1.45 billion euros (total TB R&D needs) minus 131 million euros (private sector contributions) equals 1.32 billion euros (public sector share of TB R&D needs)

9 Access or download the full report in German or English: <http://www.msfacecess.org>

TAG research suggests that the EC has in the past contributed 24.6% of the total allocated by the EU27 plus the EC to TB research. If one assumes that such a proportion were to remain stable, the **European Commission's 'fair share' to be dedicated to TB R&D reaches 101 million euros a year.**

MSF therefore calls for an increase in annual EC TB research funding from 18.7 million euros to 101 million euros a year for the duration of FP7.

The story of Maes. S., 51, Cambodia:

Maes S. got sick the first time with pulmonary tuberculosis in 1991. Tuberculum bacilli were identified in his sputum by microscopy, and he received a full standard treatment course for 8 months. After this course his sputum was clear of bacilli.

In 1996, most probably due to re-infection, he got sick again. The treatment he needed, and started, was interrupted because he could not afford the money to travel to the doctor every day to receive his drugs. This time his sputum did not become clear, he was categorized as a so-called 'failure'. Retrospectively it is very likely that he was already resistant to at least some of the standard anti-TB drugs at this time. But in 1996, MDR-TB was not known in Cambodia and no techniques existed there to detect drug-resistant TB.

He became severely sick again in 1997 and started again on standard-treatment - but the treatment failed again and was eventually stopped.

In August 2006, Maes began to cough up blood and his weight had dropped to 46 kg. He was sent to a hospital in Phnom Penh. Although at this time the problem of MDR-TB was widely known, the necessary diagnostic techniques were so expensive that it was far beyond Maes' financial means to afford it. So, instead of being introduced to a sufficient MDR-TB treatment regimen, he only received some supportive drugs, but nothing specific against TB. After 4 months in hospital, he was sent home to his province.

Towards the end of 2006, he was introduced to the MSF team, working at the reference hospital in the capital of his home province. The team suspected MDR-TB and sent sputum samples to a private laboratory in Phnom Penh. They also sent a sample to the Supra-national reference laboratory (SNRL) in

Antwerp, Belgium for culture and drug sensitivity testing (DST), knowing that culture and DST would need up to three months till the results would be available. In this particular case the delay was even worse: For both samples the presence of TB could not be determined, because they were contaminated with other bugs, a frequent problem with TB culture.

A third attempt in May 2007 brought finally the result: Maes was suffering from multidrug-resistant tuberculosis, resistant to three of the five standard anti-TB-drugs including to the both most powerful ones: rifampicin and isoniazid.

His treatment finally started on 18th July 2007, with almost nine-month delay since he first visited the MSF programme, ten years since he was suspected of being infected with MDR-TB and, fully 15 years since his initial diagnosis with TB.

Maes was lucky as he was in fairly good clinical conditions and not suffering from any co-morbidities, in particular not from HIV. For patients with HIV, a 9-month or even 3-month delay until treatment starts is far too long and will often be deadly. Every day counts.

Maes was also lucky to find an organization paying for the costs related to diagnostic and treatment. Most countries would need to send samples to outside laboratories as they do not have the capacity yet to diagnose MDR-TB. But transport of these potentially dangerous samples of *Mycobacterium tuberculosis* is very expensive. For example, to send samples from Kenya to Antwerp one has to calculate around 300 euros per patient, money which is not available. New diagnostic tools that are cheap, easy-to-handle and logistically suitable for resource poor settings, are desperately needed in order to drastically scale up TB diagnostics and treatment.

5. Conclusions

5.1 The EC is not contributing enough

The total sums disbursed to neglected disease research are still negligible compared to the EU's real income and compared to allocations that are being made in other areas of health research: For instance, the IMI intends to devote only 3.9% of its resources (10 million euros out of 258 million euros per year) to research in neglected diseases.

Put simply the EC is spending a shamefully small amount of its money on key global health priorities. There is no reason that a Union, which includes a disproportionately high number of the world's most powerful economies and accounts for 31% of the world's GDP, should spend so much less than the USA, and **barely 4.6% of its 'fair share' for TB R&D.**

The sums disbursed by the EC send a clear message about the lack of serious intent to tackle the global burden of disease. It belies its stated commitments to the Millennium Development Goals and to the control of global infectious disease.

5.2 EC research funding structures make it difficult for neglected diseases

The current structure of funding requires competition between infectious diseases and all other diseases, competition between the four categories of infectious disease, and competition between applications for a particular disease. While the latter is a perfectly reasonable way to assure quality in the applications received, it is not at all clear that competition between research applications from different diseases achieves this end. As the European Commission **does not provide earmarked funding** per disease it will always be difficult to tell how much of the total budget for health research goes to TB, malaria and neglected tropical diseases in any given year - unless substantial research is carried out, as has been the case for this report.

From conversations with officers at the EC, we have learnt that the intention is to allocate between 60 and 100 million euros a year (6-10% of the total health research budget) to these diseases and HIV/AIDS, but that this amount could be adjusted up or down. At any

Why are the EC's contributions to PDPs so minimal?

Product development partnerships, or PDPs, are non-profit organisations that have been identified as key actors in the R&D for TB, malaria and the other neglected diseases. PDPs working on TB, malaria and neglected diseases include, for example, the Global Alliance for TB drug development, or the Drugs for Neglected Diseases Initiative (DNDi).

In the short time they have existed, PDPs have shown some success in bringing new drugs to patients. For example, DNDi, established in 2003, has launched two anti-malarial products: ASAQ in 2007 and ASMQ in 2008 - both as patent free 'open source medicine'.

At the end of 2004, 75% of active drug development projects for neglected diseases (47 out of 63) were conducted by PDPs.^{xxxvii} It is further anticipated that PDPs will bring eight to nine new drugs to market by 2010.

Although the efforts by PDPs are far from enough to addressing the huge R&D challenges,^{xxxviii} PDPs do provide a part of the solution in developing

products that do address the crisis in neglected disease research in the short term.

Currently, the EC contribution to PDPs is minimal.^{xxxix} For example, the TB Alliance receives no funding at all from the EC. Other donors have committed over 146 million euros since its inception in 2000, through to 2011. DNDi has received only 3% (1.72 million euros) of its funding from the EC of a total of 68 million euros since its inception in 2003 through 2008.

Why so?

The EC FP7 funding mechanisms are focused on investigator-led research, either through consortia, linking numerous institutions and countries, or through individual principal investigator-led grants. While these approaches stimulate cross-border collaboration, and suit basic research, they are not flexible enough to support a portfolio management approach and product development efforts which need to adapt activities as candidates are prioritized for clinical testing, nor do they suit the contract flexibility needed by PDPs to meet development needs. More flexible milestone and output focused funding instruments are required if the greater proportion of research into neglected diseases is indeed a priority.

rate, the European Commission's funding of health research on key global health priorities is anything but transparent.

Making the diseases a priority would suggest allocating clear, earmarked funds for each disease, and perhaps responding more closely to the intentions of the European Parliament. The allocation for each disease should bear relation to the global burden of disease and the fair share of funding attributable to the EU for this burden.

Furthermore, funding is awarded to consortia, which, given the long-term neglect for neglected tropical diseases are unlikely to exist. The consortium model does not suit **product development partnerships** whose operating model requires flexibility in partnerships, and who are not inclined to be 'junior' members in other consortia, especially given the relatively small amount of funds being made available. (See box on previous page.)

Finally, the **timelines for funding are unclear**, and need to be streamlined. Our conversations with stakeholders revealed uncertainty about whether they have received funding at all, and the long response times from the EC make the grant application process tedious and frustrating. Better communication between potential grantees and the EC would go a long way towards easing this tension, and increasing the number of applications received by the EC.

5.3 The EC is not sufficiently exploring alternative mechanisms

Research and development funding requires a well considered mix of 'push' and 'pull' funding mechanisms. Push mechanisms such as traditional grants for individuals are a necessary impetus for basic and 'blue skies research' in particular, and will always play an important role in the advancement of science and the development of new products. 'Pull' incentives currently implemented include those incentives, such as intellectual property rights, which encourage the private sector investment into areas where commercial rewards can be expected.

As we have seen, these have revealed themselves to be ineffective for neglected diseases R&D. New mechanisms are therefore necessary to be designed as complements to the traditional 'push' mechanisms, and as alternatives to the patent-based model.

Exploring new financial mechanisms is thus urgently required. But these mechanisms must also ensure that the products of research and development are made available, affordable and accessible to those who need them. What is needed is both medical innovation and access to health technologies.

Fixing a broken system: alternative mechanisms to finance R&D

The current system for stimulating and rewarding research into and development of medicines, diagnostics and vaccines relies predominantly on the high prices that can be secured for health products developed, notably through granting monopoly and other intellectual property rights.

That the system is broken is no secret. Alternative mechanisms that stimulate research and development into neglected diseases, but also ensure that any products developed remain affordable and accessible to those in need, must be explored.

Prize funds

In April 2008, at an expert roundtable convened by Médecins Sans Frontières, tuberculosis researchers, economists and campaigners showed considerable interest in a proposal for a prize fund that would encourage the development of an easy-to-use point-of-care TB diagnostic test.

Such a proposal was subsequently made to WHO by the governments of Barbados and Bolivia. They suggested to start exploring multiple prizes: for the development of a low-cost rapid diagnostic test for tuberculosis; for new treatments for Chagas disease; for a priority medicines and vaccines prize fund to reward mechanisms for new cancer treatments in developing countries; and for a licensed products prize fund for donors.

Patent Pools

UNITAID is currently considering establishing a pharmaceutical patent pool, both to boost access to new antiretroviral (ARV) drugs to treat AIDS in developing countries and to develop fixed-dose combination and paediatric formulations of triple ARV therapy, even when the patents of the individual drugs are held by different entities.

In May 2008, the WHO Member States - including the EU27 and representation from the European Commission - adopted a Global Strategy and Plan of Action for Public Health, Innovation and Intellectual Property looking at how to ensure both innovation and access at the same time. As such, it proposed a number of new mechanisms (see box).

The Global Strategy and Plan of Action for Public Health, Innovation and Intellectual Property commits WHO member states to pursuing ideas such as these. The European Union, not least through the EC, can play an important role, both financially and technically in advancing the Global Strategy and Plan of Action. Yet to date, little interest or motivation has been shown by the EC in this regard.

6. Recommendations

1. The EC must boost the contribution it makes to TB, malaria and other neglected diseases research by:

a. Boosting its expenditure on research and development for TB, malaria and other neglected diseases.

For tuberculosis, we estimate the EC 'fair share' for TB R&D alone to stand at 101 million euros a year, instead of the current spending of 18.7 euros. Given the gravity of the TB epidemic and its proximity to Europe, the EC is particularly well placed to pioneer new approaches for funding TB R&D.

Funding for malaria and neglected tropical diseases needs to be similarly overhauled. The funding gap for neglected tropical diseases must also be quantified.

b. Conducting a mid-term review of FP7. Such an exercise needs to consider serious, substantial and rapid increases of the funding available for health research, notably for neglected disease research. This must reflect the financial potential of the European Union and be a fair contribution to the global health research.

c. Prioritising TB, malaria and other neglected diseases within IMI and ERC. These initiatives, which have as yet delivered nothing for TB, malaria or other neglected diseases, must develop specific priorities and accord specific funding to neglected diseases, in the same way as these priorities have been made in the Cooperation Programme and by the EDCTP.

2. The EC must revise its competition process for research grants, by:

a. Earmarking money for neglected diseases research.

There is no reason why funds cannot be earmarked for neglected diseases, accounted for and rapidly disbursed year-on-year within the Framework Programmes of the EC. The US National Institutes of Health might serve as a model that works in this regard. The model for funding in the EC FP7 sets departments within a unit against each other as competitors as explained in Section 2. Malaria officers should not be competing against TB officers for funding, or against officers for other neglected diseases. Rather they should be able to turn their attention to increasing the design of calls for grants in their programme areas that are attractive to researchers, and that answer the outstanding needs in their disease area, particularly for diseases that have been traditionally under-funded. It would further be a signal of the seriousness of the EC in tackling neglected diseases.

b. Funding more large-scale projects for these diseases.

Consortia are an effective way of furthering research and development of medicines for neglected diseases. The EC should not shy away from making calls for grants for larger amounts of money than it has in 2007. It would be an encouraging signal to have year-on-year, large scale project calls in the range of 6 million to 12 million euros for projects in neglected diseases, as is the case for other disease areas, such as cancer.

Product Development Partnerships are a further case in point. The frustration expressed by PDPs with regard to the FP7 structure and the virtual absence of the EC from funding for the leading PDPs for malaria, TB and other neglected diseases, is an indication of a structural inadequacy of the FP7.

c. Ensuring timely disbursement of funds. In particular, funds disbursed by EDCTP must be more rapidly released. It is an encouraging sign that the EC has recognised this and the recently undertaken restructuring of EDCTP is viewed by all stakeholders as a large step in the right direction. Funds disbursed directly from the EC must also go out the door more rapidly.

3. The EC must invest in alternative mechanisms for R&D, particularly ones that address the failure of the current R&D system by:

a. Actively participating in the implementation of WHO's Global Strategy and Plan of Action for Public Health, Innovation and Intellectual Property. The Strategy, adopted in May 2008, has given considerable momentum within the international community for exploring new mechanisms for essential health R&D. Its implementation will require committed, sustained funding from WHO member states.

The EC has an opportunity to play an exemplary role in assuring the success of the globally agreed commitments and to herald in a new age of R&D of medicines for the poor. Such mechanisms must be clear in both the price tag to deliver a product and for the product itself. Their commitment (through binding terms of reference) of delivery of affordable products to those who need them from the outset must be assured. They must also contain intellectual property management terms that assure a return to the public on their investment in R&D.

b. Investing in a prize fund for a rapid, affordable, point-of-care TB test. We would urge the particular consideration of a prize fund for rapid, cheap, point-of-use TB diagnostic as proposed by Bolivia and Barbados at the 2008 World Health Assembly.

c. Encouraging greater access to knowledge. More generally the EC needs to facilitate access to knowledge especially through 'open access' models, taking into consideration that the public should have access to the results of research generated by public funding. It should be a basic condition that for results of EC-funded health research, intellectual property cannot be used to gain monopoly rights on these results in developing countries.

Notes

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- ⁱⁱ UN Millennium Project, 2005. Global Burden of Malaria <http://www.unmillenniumproject.org/documents/GlobalBurdenofMalaria.pdf>
- ⁱⁱⁱ King CH, Bertino A 2008 Asymmetries of Poverty: Why Global Burden of Disease Valuations Underestimate the Burden of Neglected Tropical Diseases. *PLoS Neglected Tropical Diseases* 2(3): e209 doi:10.1371/journal.pntd.0000209
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- ^{iv} Calculation based on data from World Bank, Quick Reference Tables, GDP, 2007 www.worldbank.org/data/quickreference/quickref.html
- ^v World Bank, Quick Reference Tables, GDP, 2007. Obviously, the EU's GDP per capita is much lower, but even using the other methods of assigning a 'fair share' described in footnote 6 show that the EU's share should at least be similar to the US one.
- ^{vi} Global Tuberculosis Control - Surveillance, Planning, Financing. 2008. World Health Organization, Geneva. http://www.who.int/tb/publications/global_report/2008/en/index.html
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- ^{viii} Corbett EL, Watt CJ, Walker N, et al. The growing burden of tuberculosis. Global trends and interactions with the HIV epidemic. *Arch Intern Med* 2003; 163 : 1009-1021
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- ^x TAG: A Critical Analysis of Funding Trends, 2005-2006: An Update, (updated July 2008). <http://www.treatmentactiongroup.org>.
- ^{xi} George Institute (2007) The Malaria Product Pipeline: Planning for the Future, Health Policy Division, The George Institute for International Health, Global Forum for Health Research, September 2007
- ^{xii} The Global Malaria Action Plan 2005-15, page 15, <http://www.rbm.who.int/gmap/gmap.pdf>
- ^{xiii} Chirac, P. & E. Torreele, Global framework on essential Health. R&D, *Lancet*, 2006. 367 (9522) S. 1560-1561.
- ^{xiv} See for example the Report of the WHO Commission on Intellectual Property, Innovation and Public Health. <http://www.who.int/intellectualproperty/en/>
- ^{xv} CIPIH, Public Health Innovation and Intellectual Property Rights, May 2006, page 34, available at <http://www.who.int/intellectualproperty/documents/the-report/ENPublicHealthReport.pdf>
- ^{xvi} IFMPA, Feasibility Study for a Fund for R&D for Neglected Diseases, 5 February 2008, page 5
- ^{xvii} see http://cordis.europa.eu/era/3percent_en.html
- ^{xviii} Operative Paragraphs 27 and 29; www.europarl.europa.eu/intcoop/acp/6o_14/pdf/healthcare_en.pdf
- ^{xix} Report on Major and Neglected Diseases in Developing Countries, September 2005, by Rapporteur John Bowis, MEP <http://www.europarl.europa.eu/sides/getDoc.do?jsessionid=2F7EEC4F617C1660683C998EAC1E695E.node1?pubRef=-//EP//TEXT+TA+P6-TA-2005-0341+0+DOC+XML+Vo//EN>
- ^{xx} WHO Intergovernmental Working Group on Public Health, Innovation and Intellectual Property www.who.int/phi/en
- ^{xxi} WHA 61.21 En Global strategy and plan of action on public health, innovation and intellectual property, 24 May 2008. http://www.who.int/gb/e/e_wha61.html
- ^{xxii} The first report of this series entitled "Cough up for TB! - The Underfunding of Tuberculosis and other Neglected Diseases Research in Europe - Germany" (Original title: "Forschungszweig Deutschland - Kaum Forschungsmittel für vernachlässigte Krankheiten") can be downloaded in English or German on <http://www.msfacecess.org>
- ^{xxiii} This included direct funding through the cooperation budget for health, and indirect funding through the EDCTP, the European Research Council and the Innovative Medicines Initiative.
- ^{xxiv} See http://ec.europa.eu/research/health/infectious-diseases/neglected-diseases/index_en.html
- ^{xxv} In the EC Health Work Programme 2008 European Commission C(2007)5765 of 29 November 2007, this was described as applying 'competition within and between topics on the basis of the quality of the proposals. This means that in some topics more than one proposal may be funded and in other topics no proposal may be funded.' p.8
- ^{xxvi} Data from the ERC Annual report 2007 p.13 ftp://ftp.cordis.europa.eu/pub/fp7/docs/erc-annual-report_en.pdf

^{xxvii} The associated countries are Albania, Croatia, Iceland, Israel, Liechtenstein, Macedonia, Montenegro, Norway, Serbia, Switzerland, and Turkey.

^{xxviii} For more details see ERC annual report, p. 13 ftp://ftp.cordis.europa.eu/pub/fp7/docs/erc-annual-report_en.pdf

^{xxix} http://cordis.europa.eu/fp7/jtis/about-jti_en.html; <http://www.imi.europa.eu>

^{xxx} The so-called Joint Technology Initiatives are intended to implement Strategic Research Agendas (SRAs) of a limited number of European Technology Platforms (ETPs). The inclusion of a pharmaceutical platform is intended to highlight the EU commitment to becoming a world leader in pharmaceutical R&D

^{xxxi} The EC indicated that a total of 6 projects were funded from the 2007 budget totalling 20 million euros, although apart from the project mentioned, there was no evidence that these were indeed disbursed in 2007.

^{xxxii} Of the four grants, one was for TB/HIV drug interaction (rifampicin/efavirenz) with a total budget of 2 million euros of which the EDCTP contribution was 0.9 million euros; two were for TB vaccines for children and adolescents (one for 32 million euros with EDCTP contribution of 1.7 million euros, the other for 5.5 million euros with an EDCTP contribution of 1.9 million euros); one was for capacity building with a total budget of 5 million euros and EDCTP contribution of 1.2 million euros.

^{xxxiii} IMI Joint Undertaking - Scientific Priorities for 2008 http://imi.europa.eu/docs/imi-scientific-priorities2008_en.pdf

^{xxxiv} see http://www.stoptb.org/globalplan/plan_main.asp

^{xxxv} TAG: A Critical Analysis of Funding Trends, 2005-2006: An Update, (updated July 2008). <http://www.treatmentactiongroup.org>.

^{xxxvi} World Bank, Quick Reference Tables, GDP, 2007, www.worldbank.org/data/quickreference/quickref.html. Obviously, the EU's GDP per capita is much lower, but even using the other methods of assigning a 'fair share' described in footnote 6 show that the EU's share should at least be similar to the US one.

^{xxxvii} Moran, M. The new landscape of neglected disease drug research and development. Wellcome Trust, 2005 www.wellcome.ac.uk/stellent/groups/corporatesite/@msh_publishing_group/documents/web_document/wtdo26678.pdf

^{xxxviii} Casenghi M, Cole ST, Nathan CF (2007) New approaches to filling the gap in tuberculosis drug discovery. *PLoS Med* 4(11): e293 doi:10.1371/journal.pmed.0040293

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COUGH UP FOR TB!

Every day the medical teams of Médecins Sans Frontières are faced with the lack of adequate or effective tools needed to treat, detect or prevent disease – especially those diseases that predominantly occur in poor countries, such as tuberculosis, malaria or other neglected diseases.

Although governments have repeatedly recognised this disastrous state of affairs, the financial commitments for much needed research and development of drugs, diagnostics and vaccines lag far behind the political rhetoric – raising questions about the seriousness of the international community's response to this crisis in health.

This report examines the contributions of the European Commission to the funding of research for neglected diseases with a particular focus on tuberculosis: Worldwide, this disease claims around 1.7 million lives every year. We now face further and more alarming challenges with the emergence of strains that are resistant to standard drugs and the rapid spread of the disease among people living with HIV.

Given that Europe is on the frontline of tuberculosis with the rapid spread of the epidemic in Central Asia, the Caucasus, Eastern Europe, and even within the European Union in the Baltic States, the results of our investigation are extremely worrying: The European Commission does far too little to fight an epidemic that is spiralling out of control.



Campaign for Access to Essential Medicines
Médecins Sans Frontières
Rue de Lausanne 78, CP 116
CH-1211 Geneva 21, Switzerland
Tel: + 41 (0) 22 849 84 05
Fax: + 41 (0) 22 849 84 04
<http://www.msfacecess.org>